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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/564,742

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Daisuke Endo

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EXAMINER

MARKS, JACOB B

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

06/19/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/564,742	<b>Applicant(s)</b> ENDO ET AL.	
	<b>Examiner</b> JACOB MARKS	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 13-24 is/are pending in the application.
- 4a) Of the above claim(s) 6-8, 19 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 13-18, and 21-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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### **DETAILED ACTION**

The applicant's amendment filed on March 31, 2009 was received.

Claims 6-8 and 19-20 were withdrawn. Claims 9-12 were cancelled. Claims 1-7 and 13-20 were amended. Claims 21-24 were added. Claims 1-8 and 13-24 are pending.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 22 and 24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 22 and 24, both claims recite the limitation that the at least one element formed is present other than as a dopant in the base particles. The specification does not disclose or support this limitation.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, and 22-24 rejected under 35 U.S.C. 102(b) as being anticipated by Kweon et al. (US Pat. No. 6,569,569).

Regarding claim 1, Kweon et al. teach a positive active material that may be composed of  $\text{LiNi}_{1-x}\text{Co}_x\text{M}_y\text{O}_2$ , where M may be La or Ce,  $0 < x < 1$ , and  $0.01 < y < 0.1$  (abstract; col. 2 lines 23-30). The composition of Kweon et al. is present as base particles that are inherently able to dope and release lithium ions. Furthermore the Ce and La element that is present in the base particles would inherently be a part of the base particles that are able to come into contact with an electrolyte.

Regarding claim 22, the elements La and Ce are a part of the positive active base material itself and therefore are not present as dopants.

Regarding claim 23, the elements La and Ce are a part of the positive active base material and would therefore inherently cover the entire surface of the base particles.

Regarding claim 24, Kweon et al. teach a positive active material that may be composed of  $\text{LiNi}_{1-x}\text{Co}_x\text{M}_y\text{O}_2$ , where M may be La or Ce,  $0 < x < 1$ , and  $0.01 < y < 0.1$  (abstract; col. 2 lines 23-30). The composition of Kweon et al. is present as base particles that are inherently able to dope and release lithium ions. Furthermore the Ce and La element that is present in the base particles would inherently be a part of the base particles that are able to come into contact

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with an electrolyte. The elements La and Ce are a part of the positive active base material itself and therefore are not present as dopants.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 21 rejected under 35 U.S.C. 103(a) as being unpatentable over Kweon et al. as applied to claim 1 above.

Regarding claim 21, Kweon et al. do not disclose a specific weight percent of the base particles and at least one element in terms of oxide. However Kweon et al. does disclose that the La and Ce component may be from 0.01-0.1 relative to the other atomic coefficients of the active material. The concentration of La and Ce are therefore known result effective variables. Optimization of a known result effective variable is not novel. See, *In re Boesch*, 617 F.2d 272 (CCPA 1980); MPEP § 2144.05(II)(A-B). Therefore, it would have been obvious

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to one of ordinary skill in the art to optimize the concentration of the La and the Ce relative to the oxide concentration because such optimization is routine in the art.

Claim 1 is alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Shiozaki et al. (WO 03/044881, for translations see US Pat. No. 7,393,476), further in view of Park et al. (US Pat. No. 6,291,103).

Regarding claim 1, Shiozaki et al. discloses a positive active material containing lithium (base particle) (abstract). Inherent in a positive active material containing lithium is the ability to dope and release lithium ions. Shiozaki et al. does not disclose that an addition element is added to the positive active material (col. 2 lines 30-39). However, Park et al. disclose that La or Ce may be added to an active component in order to reduce irreversible capacity and to obtain high capacity and good cycle characteristics (col. 2 lines 30-39). The La and Ce that is added to an active component (base particles) would inherently be on at least part of the active component (base particles) and would inherently come into contact with the electrolyte. Therefore, it would have been obvious to combine the La or Ce additive of Park et al. with the positive active material containing lithium of Shiozaki et al. in order to reduce irreversible capacity and to obtain high capacity and good cycle characteristics.

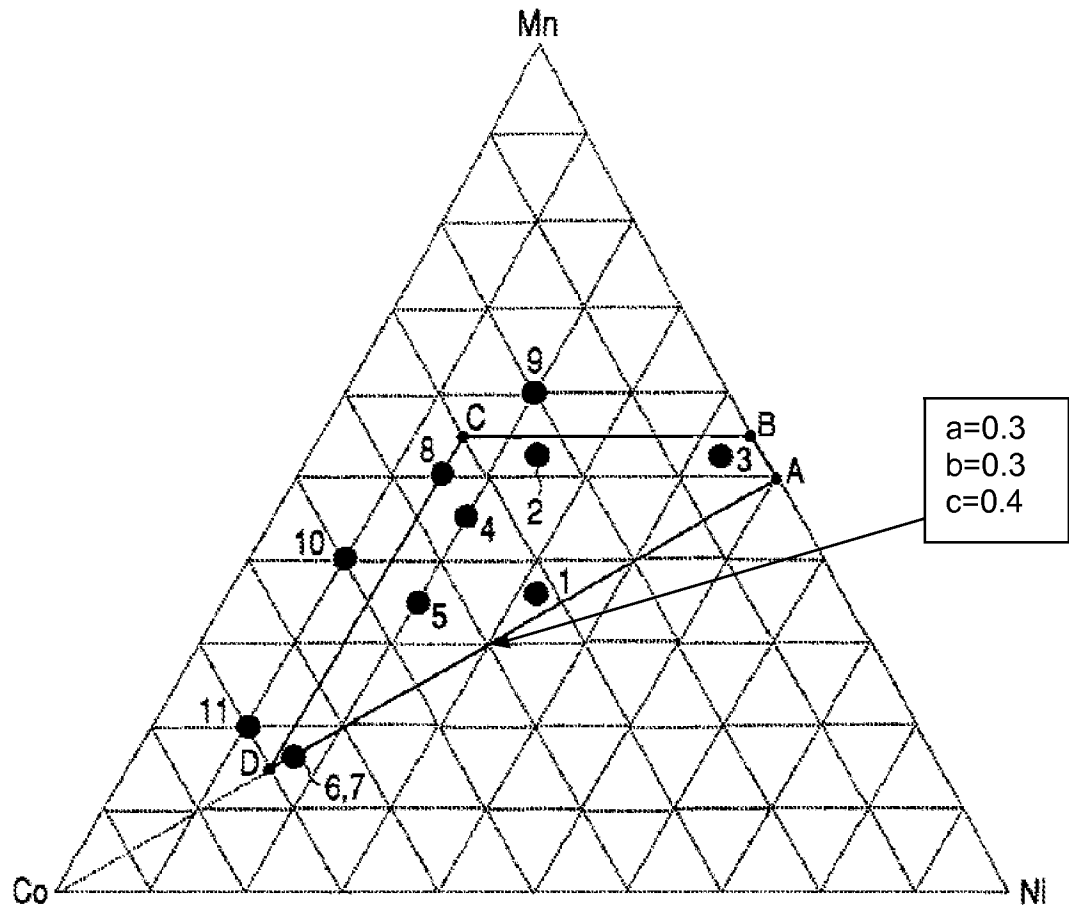
Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiozaki et al. in view of Park et al.

Regarding claims 2-5, 17, and 18, Shiozaki et al. discloses a positive active material containing lithium comprising  $\text{Li}_x\text{Mn}_a\text{Ni}_b\text{Co}_c\text{O}_2$  (base particle) (see

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abstract). Shiozaki further discloses that the positive active material may comprise  $\text{LiCoO}_2$  which corresponds to point A on fig. 1. Shiozaki et al. further discloses that a positive active material wherein  $a=0.3$ ,  $b=0.3$ ,  $c=0.4$  and  $0.95 < x < 1.35$  (see abstract; fig. 1). Shiozaki et al. also disclose that the structure of the positive active material is an  $\alpha\text{NaFeO}_2$  structure (abstract). Shiozaki et al. do not disclose that an additional element is added to the positive active material. However, Park et al. disclose that La or Ce may be added to an active component in order to reduce irreversible capacity and to obtain high capacity and good cycle characteristics (col. 2 lines 30-39). Park et al. further disclose that the La or Ce is added to an active component that is a lithium nickel cobalt oxide, which is an oxygen containing chalcogen compound (col. 2 lines 30-39). Therefore it would have been obvious to one of ordinary skill in the art to combine the base material of Shiozaki with the La or Ce additive of Park et al. in order to reduce irreversible capacity and to obtain high capacity and good cycle characteristics.

**FIG. 1**



Regarding claim 13, it is implicit in Shiozaki et al. that the positive active material is for use in a positive electrode (abstract). Shiozaki et al. further discloses that the positive active material is for use in a lithium secondary battery (abstract).

Regarding claim 14, Shiozaki et al. disclose a lithium secondary battery, with a positive electrode, a negative electrode capable of doping and undoping lithium ions and a nonaqueous electrolyte (col. 12 lines 42-50).



Regarding claim 15, Shiozaki et al. disclose that the batteries using the positive active material have obtained voltages as high as 5 V and that the batteries have been tested at voltages of 4.6 V (col. 29 line 63-col. 30 line 4).

Regarding claim 16, Shiozaki et al. disclose that the negative electrode material may be composed of carbonaceous materials (col. 13 lines 51-60). It is inherent that a negative electrode made of carbonaceous material would have 1.05 to 1.5 times the electrochemical capacity relative to the composition of the positive electrode the given broad range of positive active material that Shiozaki et al. disclose.

### ***Response to Arguments***

Regarding the rejection of claims 1-5. Applicant has substantively amended independent claim 1 from which claims 2-5 depend and necessitated a rejection based upon different art. Therefore, applicant's arguments with respect to claims 1-5 and 13-18 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory

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action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACOB MARKS whose telephone number is (571)270-7873. The examiner can normally be reached on Monday through Friday 7:30-5:00 alt Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service

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Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jacob Marks/

/Brian J. Sines/  
Supervisory Patent Examiner, Art Unit 1795